

### **REMARKS/ARGUMENTS**

Claims 1 and 9 have been amended as set forth above for clarity. Claims 40, 41, 46 and 47 have been amended as set forth below to remedy the 35 U.S.C. 112, second paragraph issue. The other claims have not been amended in that applicants disagree with the current interpretation of the references and the current interpretation of the claims. Further consideration is respectfully requested as set forth below. No new matter has been added.

#### **I. Examiner Interview August 22, 2007**

An examiner interview was held on August 22, 2007. During the interview, the specification was discussed in light of proposed claim 1. An agreement as to allowability was not reached.

#### **II. Rejection under 35 U.S.C. 112, second paragraph**

Claims 40, 41, 46, and 47 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. The Office Action asserts that the term "BM25" is not defined by the claim language which renders the claim indefinite. The claims have been amended to recite "BM25 function." The specification recites the term "BM25 function" at page 14, line 3 of the specification. Accordingly, applicants request removal of the rejection.

#### **II. Rejection under 35 U.S.C. 103(a)**

Claims 1-39, 42-45, and 48-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,960,383 issued to Fleischer (hereinafter "Fleischer") in view of Brin et al. "*The Anatomy of a Large-Scale Hypertextual Web Search Engine*," Sergey Brin and Lawrence Page, Stanford University, Stanford, CA, April 14, 1998 (hereinafter "Brin"). Claims 40, 41, 46 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fleischer in view of Brin and further in view of U.S. publication NO. 2002/0169595 published to Agichtein (hereinafter "Agichtein"). Applicants respectfully disagree. Independent claim 1 includes the following combination of features that is not taught or suggested by the cited reference:

replicating the content of each field of the document a number of times indicated by a field weight corresponding to the field to produce an individual field set corresponding to each field in the document;

combining each field set for the document into a virtual document;

indexing the virtual document to produce a virtual document statistics; and

computing the field-weighted score from the virtual document index based on the query.

The above combination of features is not taught or suggested by the cited references. Fleischer teaches that what is desired in the art is "an automatic means by which to process available documents to provide a reader a synopsis of the material contained in the document." *Fleisher* at col. 1, lines 25-27. Fleischer addresses this need by providing a method and apparatus for condensing a document. *Fleisher* at col. 1, lines 34-37. Fleisher divides the document into a plurality of sections and compares the words of the sections to a document noun phrase list. *Fleisher* at col. 1, lines 41-54. Fleisher counts the number of times that a match occurs between the words of the section and the document noun phrase list. *Fleisher* at col. 1, lines 41-54. The count of matches is then used to rank the section of the document. *Fleisher* at col. 1, lines 41-54. When a user pulls up the document, the sections will be presented to give the reader of synopsis of the material contained in the document. *Fleisher* at col. 1, lines 41-54.

More specifically in Fleisher, the document is divided into noun phrases. The noun phrases are given a weight that is based on the number of times that the noun phrase appears in the document and the typical usage of the noun in the English language. *Fleisher* at col. 3, lines 31-52. After the noun phrases of the document have been identified and ranked, the document is divided into sections (e.g. chapters, paragraphs or sentences). *Fleisher* at col. 3, lines 52-60. Each section is then analyzed to provide a section noun phrase list which corresponds to the section. *Fleisher* at col. 3, lines 61-65. A score is given to the section based on the noun phrases. Fleisher teaches that "[o]ne method of determining the "score" for a section is to simply add the weights associated with each of the noun phrases identified for the section which are also found in the document noun phrase list 26." *Fleisher* at col. 4, lines 9-14. From the rankings, the

Extractor then determines which paragraphs of the original input document will appear in the output text. *Fleisher* at col. 4, lines 16-18.

***Fleisher uses the noun phrase to rank the sections to determine which section to output*** because Fleisher is concerned with providing an automatic means by which to process available documents to provide a reader a synopsis of the material contained in the document. Claim 1 recites "replicating the content of each field of the document a number of times indicated by a field weight corresponding to the field to produce an individual field set corresponding to each field in the document." Fleisher does not teach or suggest these features. As mentioned, Fleisher ranks a section based on the content of the section. The above feature of claim 1 weights the content of a field based on the weight of the field. Furthermore, Fleisher does not teach replicating the content of each field a number of times ***indicated by the field weight***. Claim 1 also recites "combining each field set for the document into a virtual document." The field set is produced from "replicating the content of each field of the document a number of times indicated by a field weight corresponding to the field." Fleisher does not even mention producing a virtual document in this manner. Fleisher teaches output text that includes a set of synopsis. Claim 1 also recites "indexing the virtual document to produce a virtual document statistics." The virtual document includes each field set of the document. Each field set of the document is produced by replicating the content of each field of the document a number of times indicated by a field weight corresponding to the field. Fleisher does not teach this combination of features. Fleisher teaches storing the output text, where the output text is a synopsis of the document. Claim 1 also recites "computing the field-weighted score from the virtual document index based on the query." The virtual document includes each field set of the document. Each field set of the document is produced by replicating the content of each field of the document a number of times indicated by a field weight corresponding to the field. Fleisher does not teach or suggest the virtual document as recited let alone a field weighted score from the virtual document index based on a query.

Brin does not remedy the lack of teaching in Fleisher. Brin is the academic paper that seeded Google. Brin teaches a PageRank calculation for a search. The PageRank calculation is an algorithm for ranking a page in a database so that when a user searches a database the most

relevant pages are returned. PageRank is an attempt at an objective measure of a pages citation importance. *Brin*, at section 2.1. PageRank takes into account how many pages link or point to the page of interest. For example, a page may have a high PageRank if several pages link or point to the page. *Brin*, at section 2.1. The PageRank is a measure of the significance of the page in a search.

Brin identifies Anchor Text as text of links in a page. For the search engine, Brin associates the text of the link with the page that the link is on and the page that the link points to. Through the double association, searches can be ran for non-text items that are not identified by a web crawler and the accuracy of the search is increased. Here, Brin is teaching calculating a citation importance for a page through a PageRank and using anchor text to improve the accuracy of a search. For example, a user may input a very general search such as "Bill Clinton." The search engine will produce search results that include pages which have a high PageRank (e.g. have been cited to by other documents).

Brin also teaches that "a hit list corresponds to a list of occurrences of a particular word in a particular document including position, font, and capitalization information. *Brin*, at section 4.2.5. Brin teaches two types of hits that include fancy hits and plain hits. *Brin*, at section 4.2.5. Fancy hits include hits occurring in a URL, title, anchor text, or meta tag. *Brin*, at section 4.2.5. Plain hits include everything else. *Brin*, at section 4.2.5. The two types of hits are used during the ranking of the documents. Brin teaches that "Google considers each hit to be one of several different types (title, anchor, URL, plain text large font, plain test small font) each having its own type-weight. *Brin*, at section 4.5.1. Here, Brin does teach weighting different attributes during a search. However, Brin does not teach the combination of claim 1. Brin does not teach "replicating the content of each field of the document a number of times indicated by a field weight corresponding to the field to produce an individual field set corresponding to each field in the document." In fact, Brin does not teach the replication of the document. Brin pertains to the document itself. Also, Brin does not teach "a virtual document." Again, Brin pertains to the document itself. A virtual document as recited in claim 1 is never described. As also recited in claim 1, the virtual document is indexed and claim 1 recites "computing the field-weighted score

from the virtual document index based on the query." There is no such teaching in Brin. Accordingly applicants assert that claim 1 is allowable over the references.

Independent claim 9 includes the following combination of features that is not taught or suggested by the cited reference:

replicating the content of each field of the document a number of times indicated by a field weight corresponding to the field to produce an individual field set corresponding to each field in the document;

combining each field set for the document into a virtual document;

indexing the virtual document to produce a virtual document statistics; and

computing the field-weighted score from the virtual document index based on the query.

The above combination of features is not taught or suggested by the cited references.

Fleisher uses the noun phrase to rank the sections to determine which section to output

because Fleisher is concerned with providing an automatic means by which to process available documents to provide a reader a synopsis of the material contained in the document. Claim 9 recites "replicating the content of each field of the document a number of times indicated by a field weight corresponding to the field to produce an individual field set corresponding to each field in the document." Fleisher does not teach or suggest these features. As mentioned, Fleisher ranks a section based on the content of the section. The above feature of claim 9 weights the content of a field based on the weight of the field. Furthermore, Fleisher does not teach replicating the content of each field a number of times indicated by the field weight. Claim 9 also recites "combining each field set for the document into a virtual document." The field set is produced from ""replicating the content of each field of the document a number of times indicated by a field weight corresponding to the field." Fleisher does not even mention producing a virtual document in this manner. Fleisher teaches output text that includes a set of synopsis. Claim 9 also recites "indexing the virtual document to produce a virtual document statistics." The virtual document includes each field set of the document. Each field set of the document is produced by replicating the content of each field of the document a number of times indicated by a field weight corresponding to the field. Fleisher does not teach this combination

of features. Fleisher teaches storing the output text, where the output text is a synopsis of the document. Claim 9 also recites "computing the field-weighted score from the virtual document index based on the query." The virtual document includes each field set of the document. Each field set of the document is produced by replicating the content of each field of the document a number of times indicated by a field weight corresponding to the field. Fleisher does not teach or suggest the virtual document as recited let alone a field weighted score from the virtual document index based on a query.

Brin does not remedy the lack of teaching in Fleisher. Brin does not teach the combination of claim 9. Brin does not teach "replicating the content of each field of the document a number of times indicated by a field weight corresponding to the field to produce an individual field set corresponding to each field in the document." In fact, Brin does not teach the replication of the document. Brin pertains to the document itself. Also, Brin does not teach "a virtual document." Again, Brin pertains to the document itself. A virtual document as recited in claim 9 is never described. As also recited in claim 9, the virtual document is indexed and claim 1 recites "computing the field-weighted score from the virtual document index based on the query." There is no such teaching in Brin. Accordingly applicants assert that claim 9 is allowable over the references.

Independent claim 17 includes the following combination of features that is not taught or suggested by the cited reference:

determining a field-specific term frequency for each field in the document for each query term;

weighting each field-specific term frequency according to a field weight designated for the corresponding field to compute a field-weighted term frequency for each query term;

computing a field-weighted document weight for each query term based on the field-weighted term frequency for each query term; and

computing the field-weighted score as a function of the field-weighted document weight of all query terms.

The above combination of features is not taught or suggested by the cited references.  
Fleisher uses the noun phrase to rank the sections to determine which section to output

because Fleisher is concerned with providing an automatic means by which to process available documents to provide a reader a synopsis of the material contained in the document. Claim 17 recites "determining a field-specific term frequency for each field in the document for each query term," and " weighting each field-specific term frequency according to a field weight designated for the corresponding field to compute a field-weighted term frequency for each query term." Fleisher does not teach or suggest these features. As mentioned, Fleisher ranks a section based on the content of the section. The above feature of claim 17 weights the field specific term frequency based of the field weight. Claim 17 also recites "computing a field-weighted document weight for each query term based on the field-weighted term frequency for each query term." Fleisher teaches output text that includes a set of synopsis. Claim 17 also recites "computing the field-weighted score as a function of the field-weighted document weight of all query terms." Fleisher does not teach or suggest the field-weighted score as recited let alone a field weighted score as a function of the field-weighted document weight of all query terms..

Brin does not remedy the lack of teaching in Fleisher. Brin does not teach the combination of claim 17. Brin does not teach "a field-specific term frequency for each field in the document." Brin does not address field-specific term frequency for each field. Brin pertains to the number of citations associated with a document to determine the ranking. Also, Brin does not teach "weighting each field-specific term frequency according to a field weight designated for the corresponding field to compute a field-weighted term frequency for each query term." Again, Brin does not teach breaking a document into fields and applying a weight to each of the fields to determine the relevance of the document. As such, Brin cannot possibly teach calculating "a field-weighted document weight," and/or "a field-weighted score." Accordingly applicants assert that claim 17 is allowable over the references.

Independent claim 26 includes the following combination of features that is not taught or suggested by the cited reference:

determining a field-specific term frequency for each field in the document for each query term;

weighting each field-specific term frequency according to a field weight  
designated for the corresponding field to compute a field-weighted term  
frequency for each query term;

computing a field-weighted document weight for each query term based on the field-weighted term frequency for each query term; and

computing the field-weighted score as a function of the field-weighted document weight of all query terms.

The above combination of features is not taught or suggested by the cited references.

**Fleisher uses the noun phrase to rank the sections to determine which section to output**

because Fleisher is concerned with providing an automatic means by which to process available documents to provide a reader a synopsis of the material contained in the document. Claim 26 recites "determining a field-specific term frequency for each field in the document for each query term," and "weighting each field-specific term frequency according to a field weight designated for the corresponding field to compute a field-weighted term frequency for each query term." Fleisher does not teach or suggest these features. As mentioned, Fleisher ranks a section based on the content of the section. The above feature of claim 26 weights the field specific term frequency based of the field weight. Claim 26 also recites "computing a field-weighted document weight for each query term based on the field-weighted term frequency for each query term." Fleisher teaches output text that includes a set of synopsis. Claim 26 also recites "computing the field-weighted score as a function of the field-weighted document weight of all query terms." Fleisher does not teach or suggest the field-weighted score as recited let alone a field weighted score as a function of the field-weighted document weight of all query terms.

Brin does not remedy the lack of teaching in Fleisher. Brin does not teach the combination of claim 26. Brin does not teach "a field-specific term frequency for each field in the document." Brin does not address field-specific term frequency for each field. Brin pertains to the number of citations associated with a document to determine the ranking. Also, Brin does not teach "weighting each field-specific term frequency according to a field weight designated for the corresponding field to compute a field-weighted term frequency for each query term." Again, Brin does not teach breaking a document into fields and applying a weight to each of the fields to determine the relevance of the document. As such, Brin cannot possibly teach calculating "a field-weighted document weight," and/or "a field-weighted score." Accordingly applicants assert that claim 26 is allowable over the references.



Independent claim 35 includes the following combination of features that is not taught or suggested by the cited reference:

**a field-weighted term frequency calculator that determines a field-specific term frequency for each field in the document for each query term** and weights each field-specific term frequency according to a field weight identified for the corresponding field to compute a field-weighted term frequency for each query term;

**a field-weighted document weight calculator** that computes a field-weighted document weight for each query term based on the field-specific term frequency for each query term; and

**a document score calculator** that computes the field-weighted score as a function of the field-weighted document weight of all query terms.

The above combination of features is not taught or suggested by the cited references.

**Fleisher uses the noun phrase to rank the sections to determine which section to output**

because Fleisher is concerned with providing an automatic means by which to process available documents to provide a reader a synopsis of the material contained in the document. Claim 35 recites "a field-weighted term frequency calculator that determines a field-specific term frequency for each field in the document for each query term and weights each field-specific term frequency according to a field weight identified for the corresponding field to compute a field-weighted term frequency for each query term," and "a field-weighted document weight calculator that computes a field-weighted document weight for each query term based on the field-specific term frequency for each query term." Fleisher does not teach or suggest these features. As mentioned, Fleisher ranks a section based on the content of the section. The above feature of claim 35 weights the field specific term frequency based of the field weight. Claim 35 also recites "a document score calculator that computes the field-weighted score as a function of the field-weighted document weight of all query terms." Fleisher does not teach or suggest the a document score calculator as recited let alone a field weighted score as a function of the field-weighted document weight of all query terms.

Brin does not remedy the lack of teaching in Fleisher. Brin does not teach "a field-specific term frequency calculator that determines a field-specific term frequency for each field in the document for each query term." Brin does not address field-specific term frequency for

each field. Brin pertains to the number of citations associated with a document to determine the ranking. Brin does not teach breaking a document into fields and applying a weight to each of the fields to determine the relevance of the document. As such, Brin cannot possibly teach "a field-weighted document weight calculator," and/or "a document score calculator." Accordingly applicants assert that claim 35 is allowable over Brin.

Independent claim 38 includes the following combination of features that is not taught or suggested by the cited reference:

*computing a field-weighted term frequency for each query term* based on field weights designated for *individual fields in the document*;

computing *a field-weighted document weight for each query term based on the field-weighted term frequency* for each field in the document; and

*computing the field-weight score* as a function of the field-weighted document weights of the query terms.

The above combination of features is not taught or suggested by the cited references.

*Fleisher uses the noun phrase to rank the sections to determine which section to output*

because Fleisher is concerned with providing an automatic means by which to process available documents to provide a reader a synopsis of the material contained in the document. Claim 38 recites "computing a field-weighted term frequency for each query term based on field weights designated for individual fields in the document," and "computing a field-weighted document weight for each query term based on the field-weighted term frequency for each field in the document." Fleisher does not teach or suggest these features. As mentioned, Fleisher ranks a section based on the content of the section. The above feature of claim 38 weights the field specific term frequency based of the field weight. Claim 38 also recites "computing the field-weight score as a function of the field-weighted document weights of the query terms." Fleisher does not teach or suggest this feature.

Brin does not remedy the lack of teaching in Fleisher. Brin does not teach "computing a field-weighted term frequency for each query term based on field weights designated for individual fields in the document." Brin does not address field-specific term frequency for each field. Brin pertains to the number of citations associated with a document to determine the

ranking. Brin does not teach breaking a document into fields and applying a weight to each of the fields to determine the relevance of the document. As such, Brin cannot possibly teach "computing a field-weighted document weight for each query term," and/or "computing the field-weight score." Accordingly applicants assert that claim 38 is allowable over Brin.

Independent claim 44 includes the following combination of features that is not taught or suggested by the cited reference:

computing a field-weighted term frequency for each query term based on field weights designated for individual fields in the document;

computing a field-weighted document weight for each query term based on the field-weighted term frequency for each field in the document; and

computing the field-weight score as a function of the field-weighted document weights of the query terms.

The above combination of features is not taught or suggested by the cited references.

**Fleisher uses the noun phrase to rank the sections to determine which section to output**

because Fleisher is concerned with providing an automatic means by which to process available documents to provide a reader a synopsis of the material contained in the document. Claim 44 recites "computing a field-weighted term frequency for each query term based on field weights designated for individual fields in the document," and "computing a field-weighted document weight for each query term based on the field-weighted term frequency for each field in the document." Fleisher does not teach or suggest these features. As mentioned, Fleisher ranks a section based on the content of the section. The above feature of claim 44 weights the field specific term frequency based of the field weight. Claim 44 also recites "computing the field-weight score as a function of the field-weighted document weights of the query terms." Fleisher does not teach or suggest this feature.

Brin does not remedy the lack of teaching in Fleisher. Brin does not teach "computing a field-weighted term frequency for each query term based on field weights designated for individual fields in the document." Brin does not address field-specific term frequency for each field. Brin pertains to the number of citations associated with a document to determine the ranking. Brin does not teach breaking a document into fields and applying a weight to each of

the fields to determine the relevance of the document. As such, Brin cannot possibly teach "computing a field-weighted document weight for each query term," and/or "computing the field-weight score." Accordingly applicants assert that claim 44 is allowable over Brin.

Independent claim 50 includes the following combination of features that is not taught or suggested by the cited reference:

a field-weighted term frequency calculator that **computes a field-weighted term frequency for each query term** based on field weights designated for individual fields in the document;

a field-weighted document weight calculator that **computes a field-weighted document weight for each query term based on the field-weighted term frequency for each field in the document;** and

a search engine that computes **the field-weighted score** as a function of the field-weighted document weights of the query terms.

The above combination of features is not taught or suggested by the cited references.

**Fleisher uses the noun phrase to rank the sections to determine which section to output**

because Fleisher is concerned with providing an automatic means by which to process available documents to provide a reader a synopsis of the material contained in the document. Claim 50 recites "a field-weighted term frequency calculator that computes a field-weighted term frequency for each query term based on field weights designated for individual fields in the document," and "a field-weighted document weight calculator that computes a field-weighted document weight for each query term based on the field-weighted term frequency for each field in the document." Fleisher does not teach or suggest these features. As mentioned, Fleisher ranks a section based on the content of the section. The above feature of claim 50 weights the field weighted term frequency based of the field weight. Claim 50 also recites "a search engine that computes the field-weighted score as a function of the field-weighted document weights of the query terms." Fleisher does not teach or suggest this feature.

Brin does not remedy the lack of teaching in Fleisher. Brin does not teach "a field-weighted term frequency calculator that computes a field-weighted term frequency for each query term." Brin does not address field-specific term frequency. Brin pertains to the number of citations associated with a document to determine the ranking. Brin does not teach breaking a

document into fields and applying a weight to each of the fields to determine the relevance of the document. As such, Brin cannot possibly teach a "weight calculator that computes a field-weighted document weight for each query term based on the field-weighted term frequency for each field in the document," and/or "the field-weighted score." Accordingly applicants assert that claim 50 is allowable over Brin.

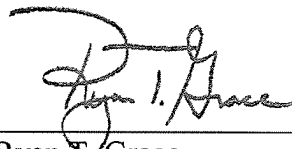
With regard to the dependent claims, they ultimately depend from the independent claims above. As such, they should be found allowable for at least the same reasons stated above.

### **III. Request for Reconsideration**

In view of the foregoing amendments and remarks, all pending claims are believed to be allowable and the application is in condition for allowance. Therefore, a Notice of Allowance is respectfully requested. Should the Examiner have any further issues regarding this application, the Examiner is requested to contact the undersigned attorney for the applicants at the telephone number provided below.

Respectfully submitted,

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